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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,520	11/27/2001	Seung-June Yi	K-0324	8124

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EXAMINER	
SOL, ANTHONY M	
ART UNIT	**PAPER NUMBER**
2662	

DATE MAILED: 08/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/993,520	YI ET AL.	
	Examiner	Art Unit	
	Anthony Sol	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 November 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *29-74* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *29-74* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 November 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner. 27 November 2001 and

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

- Applicant's preliminary amendment filed October 27, 2001 is acknowledged.
- Claims 1-28 have been canceled.
- Claims 29-74 have been added.

Claim Objections

1. Claims 35 and 58 are objected to because of the following informalities:
   - For claim 35, line 2, it is believed that "shared cannel control channel" should state –shared channel control channel--.
   - For claim 58, line 2, it is believed that "shared cannel control channel" should state –shared channel control channel--.

Appropriate corrections are required.

Claim Rejections – 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 29-30, 33-39, 42-48, 50-53, 56-61, 64-70 and 72-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over ETSI TS 125 322 v3.1.2 ("ETSI TS) in view of U.S. Patent No. 6,408,009 B1 ("Campbell").

Regarding claims 29 and 52,

ETSI TS shows in Fig. 4.2 a segmentation module receiving a service data unit from an upper layer and segmenting the SDUs into appropriate PDUs (segmentation module providing at least one protocol data unit). The PDUs are passed to the transmission buffer. The PDUs are provided to the MAC through either a BCCH, PCCH, SHCCH, SCCH or a DTCH (providing the at least one protocol data unit to a lower layer) (ETSI TS, pg. 11, lines 1-2).

ETSI TS does not show that the transmission buffer, not the segmentation module, receiving at least one service data unit from an upper layer. ETSI TS also does not show that the segmentation module providing at least one protocol data unit based on the at least one SDU received from the transmission buffer. ETSI TS also does not show that it is the segmentation module providing the at least one protocol unit to a lower layer and not the transmission buffer.

Campbell shows in Fig. 15, a workstation 26. The nodal apparatus 14 (shown in Fig. 13) is coupled to a system bus 50 of the personal computer 26. The nodal apparatus 14 receives data in a packet transmission buffer 60 (receiving at least one service data unit from an upper layer). The transmission buffer passes the packet to the segmenter 60b (segmentation module providing at least one protocol data unit based on the at least one SDU received from the transmission buffer). The individual segments are sent to the outbound bus 20

(segmentation module providing the at least one protocol unit to a lower layer) (Col. 20, lines 50-61).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention was made to modify the arrangement of the segmentation module and the transmission buffer of the RLC as disclosed by ETSI TS such that the transmission buffer receives the packet (SDU) and sends the packet (SDU) to the segmenter (segmentation module) to be further sent to the outbound bus (lower layer) as taught by Campbell so that the transmission controller 64 (MAC) will only transfer a segment of data which it has received from the segmented data slot buffer 60 if certain other events occur, such as available bandwidth (Campbell, Col. 20, lines 62-65). One skilled in the art would have been motivated to combine ETSI TS with Campbell (collectively "ETSI TS-Campbell") to generate the claimed invention with a reasonable expectation of success.

4. Regarding claims 30 and 53,

ETSI TS-Campbell discloses a device and method that covers all the limitations of the parent claim.

ETSI TS-Campbell discloses that MAC decides how many PDUs shall be transmitted in each TTI (ETSI TS, pg.38, subsection 11.1.2, line 7). The MAC instructs the RLC transparent mode entity regarding a number of PDUs that can be transferred in one TTI.

5. Regarding claims 33-36, 44-46, 56-59 and 66-68,

ETSI TS-Campbell discloses a device and method that covers all the limitations of the parent claim.

ETSI TS-Campbell discloses that the RLC delivers the RLC PDUs to MAC through either a BCCH, PCCH, SHCCH, SCCH, or a DTCH logical channel (ETSI TS, subsection 4.2.1.1, lines 3-6)

6. Regarding claims 37 and 60,

ETSI TS-Campbell discloses a device and method that covers all the limitations of the parent claim.

ETSI TS-Campbell shows in Fig. 4.2 of ETSI TS that the SDU is received through the Tr-SAP (receives the SDU through a transparent service access point (ETSI TS, pg. 11, subsection 4.2.1.1, line 1). It was already established in the rejection to claim 29 that the SDU is received by the transmission buffer and not the segmentation module as depicted in Fig. 4.2.

7. Regarding claim 38,

ETSI TS-Campbell discloses a device that covers all the limitations of the parent claim.

ETSI TS-Campbell shows in Fig. 4.2 of ETSI TS that the PDU is sent from one entity to the peer entity.

8. Regarding claims 39 and 61,

ETSI TS-Campbell discloses a device and method that covers all the limitations of the parent claim.

ETSI TS-Campbell discloses that how to perform the segmentation of SDUs into PDUs is decided upon when the service is established (ETSI TS, pg. 11, subsection 4.2.1.1, lines 1-3).

9. Regarding claims 42, 47, 64 and 69,

ETSI TS-Campbell discloses a device and method that covers all the limitations of the parent claim.

ETSI TS-Campbell shows in Fig. 4.2 a receiver buffer for receiving at least one transparent mode protocol unit from the MAC layer (Claim 42: lower layer) (ETSI TS, pg. 11, subsection 4.2.1.1, line 7).

ETSI TS-Campbell shows in Fig. 4.2 a RLC reassembly module that reassembles the PDUs into SDUs (ETSI TS, pg. 11, subsection 4.2.1.1, line 8). The Fig. 4.2 further shows the reassembly module delivers the SDUs to the higher layer (Claims 42 and 64: providing the at least one RLC service data unit to the upper layer) through the Tr-SAP (Claims 47 and 69: one RLC service data unit is provided to the upper layer through a transparent mode service access point) (ETSI TS, pg. 11, subsection 4.2.1.1, line 9).

10. Regarding claims 43 and 65,

ETSI TS-Campbell discloses a device and method that covers all the limitations of the parent claim.

ETSI TS-Campbell discloses that the Tr-entity receives PDUs through one of the logical channels from the MAC sublayer (lower layer) (ETSI TS, pg. 11, subsection 4.2.1.1, line 7).

11. Regarding claims 48 and 70,

ETSI TS-Campbell discloses a device and method that covers all the limitations of the parent claim.

ETSI TS-Campbell discloses that the RLC reassembles the PDUs into SDUs (ETSI TS, pg. 11, subsection 4.2.1.1, line 8).

12. Regarding claims 50 and 72,

ETSI TS-Campbell discloses a device and method that covers all the limitations of the parent claim.

ETSI TS-Campbell discloses that the RLC might segment the SDUs into appropriate RLC PDUs without adding any overhead (ETSI TS, pg. 11, subsection 4.2.1.1, lines 1-2).

13. Regarding claims 51, 73 and 74,

ETSI TS-Campbell discloses a device and method that covers all the limitations of the parent claim.

ETSI TS-Campbell shows in Fig. 4.2 a model of two transparent mode entities. The figure shows the receiving side Tr-entity receiving PDUs through one of the logical channels from the transmitting side Tr-entity.

14. Claims 32 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over ETSI TS in view of Campbell, and in further view of 3GPP_TSG_RAN_WG2 archives – May 2000 (#16) ("WG2 archives, May 2000").

ETSI TS-Campbell discloses a device and method that covers all the limitations of the parent claim.

ETSI TS-Campbell does not disclose that the information is provided by a MAC-STATUS-Ind primitive from the lower layer, which comprises a media access control (MAC) layer.

WG2 archives, May 2000 discloses that the TR-RLC receives a MAC_STATUS_IND telling it how many PDUs to send to the MAC (Pg. 1, lines 12-13).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention was made to include in the information received by the RLC transparent mode entity as taught by ETSI TS-Campbell, that the information is provided by a MAC_STATUS_IND from the MAC as taught by WG2 archives, May 2000 so that the RLC and the MAC could be in sync in order to use the bandwidth of the communication path efficiently. One skilled in the art would have been motivated to combine ETSI TS-Campbell with WG2 archives, May 2000 (collectively "ETSI TS-Campbell-WG2 archives, May 2000") to generate the claimed invention with a reasonable expectation of success.

15. Claims 31 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over ETSI TS in view of Campbell, and in further view of U.S. Patent No. 6,788,686 B1 ("Khotimsky").

ETSI TS-Campbell discloses a device and method that covers all the limitations of the parent claim.

ETSI TS-Campbell does not disclose that the information further relates to a protocol data unit size.

Khotimsky discloses a variable-length protocol data unit, e.g., IP packet (Col. 4, line 29).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention was made to include in the information received by the RLC transparent mode entity as taught by ETSI TS-Campbell, the further information relating to a variable-length protocol data unit as taught by Khotimsky so that the bandwidth could be efficiently used since the available bandwidth of the communication path vary significantly over time. One skilled in the art would have been motivated to combine ETSI TS-Campbell with Khotimsky (collectively "ETSI TS-Campbell-Khotimsky") to generate the claimed invention with a reasonable expectation of success.

16. Claims 40, 41, 62 and 63 are rejected under 35 U.S.C. 103(a) as being

unpatentable over ETSI TS in view of Campbell, and in further view of 3GPP TSG RAN WG2 Meeting #yy, "Change Request", Document R2-00xxxx.("Change Request").

Regarding claims 40 and 62,

ETSI TS-Campbell discloses a device and method that covers all the limitations of the parent claim.

ETSI TS-Campbell does not disclose that the at least one service data unit is segmented by the segmentation module to provide the at least one PDU depending upon transport formats of a transport channel.

Change Request discloses that the allowed size for segments (PDUs) shall be determined from the transport formats of the transport channel (Pg. 2, subsection 9.2.2.9, lines 6-7).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention was made to modify the segmentation of service data unit as taught by ETSI-Campbell to include that the segmentation depends upon the transport formats of a transport channel as taught by Change Request so that the segments conform to the format of the transport channel that will be utilized. One skilled in the art would have been motivated to combine ETSI TS-Campbell with Change Request (collectively "ETSI TS-Campbell-Change Request") to generate the claimed invention with a reasonable expectation of success.

17. Regarding claims 41 and 63,

ETSI TS-Campbell discloses a device and method that covers all the

limitations of the parent claim.

ETSI TS-Campbell does not disclose that the at least one protocol data unit provided by the segmentation module comprises one complete service data unit or segments of one complete service data unit.

Change Request discloses that SDUs might be segmented (segments of one complete service data unit)(Pg. 2, subsection 9.2.2.9, line 5). Change Request also discloses that if segmentation is not used one SDU can be sent using one PDU (one complete service data unit) (Pg. 2, subsection 9.2.2.9, lines 8-9).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention was made to modify the segmentation of service data unit as taught by ETSI-Campbell to include that the segmentation of the SDU results in one SDU or segments of one SDU as taught by Change Request so that the number of segments can be determined according to the available bandwidth of the transport channel. One skilled in the art would have been motivated to combine ETSI TS-Campbell with Change Request (collectively "ETSI TS-Campbell-Change Request") to generate the claimed invention with a reasonable expectation of success.

18. Claims 49 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over ETSI TS in view of Campbell, and in further view of TSGR2#12(00)867, "Transmission of the fixed sized PDUs through the

Transparent RLC", TSG RAN WG 2#12, Seoul, Korea, 10-13 April, 2000 ("TSGR2").

ETSI TS-Campbell discloses a device and method that covers all the limitations of the parent claim.

ETSI TS-Campbell does not disclose that the reassembly module provides a transparent mode PDU of the at least one transparent mode PDU as an RLC SDU if segmentation was not configured.

TSGR2 discloses that upon reception of a TrD PDI in Inactive segmentation state (segmentation was not configured), one RLC PDU contains exactly one complete RLC SDU (Pg. 4, subsection 11.1.3, line 3).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention was made to modify the reassembly module of ETSI TS-Campbell to provide one RLC PDU per one RLC SDU if segmentation was not configured as taught by TSGR2 since the size of the PDU and the SDU exactly matches. So there is no need to for the reassembly module to reassemble the PDUs. One skilled in the art would have been motivated to combine ETSI TS-Campbell with TSGR2 (collectively "ETSI TS-Campbell-TSGR2") to generate the claimed invention with a reasonable expectation of success.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Sol whose telephone number is (571) 272-5949. The examiner can normally be reached on M-F 7:30am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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7/29/2005

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